

Application Serial No. 10/562,516
Reply to Office Action of March 20, 2009

SEP 14 2009

PATENT
Docket: CU-4639Amendments to the Claims

The listing of claims presented below replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1 – 17. (Cancelled)

18. (Currently amended) A display device having a view angle control sheet being bonded to a liquid crystal display panel, wherein the view angle control sheet comprising comprises lens portions having trapezoidal shapes in cross section arranged at predetermined intervals, a wedge-shaped portion between the lens portions adjacent to each other is filled with the same material as that of the lens portions or with a material different from the lens portions, a base sheet on the liquid crystal display panel a screen image side of the lens portions and the wedge-shaped portion, wherein a light from the liquid crystal display panel the screen image side is the light with various angles, the wedge-shaped portion has a bottom surface on the liquid crystal display panel screen image side while having a leading edge on an observer side with an outside light beam absorption effect, and the following relationship is held at least between a refractive index (N2) of a material constituting a slope portion of the wedge-shaped portion and a refractive index (N1) of a material constituting the lens portions:

$$N2 \leq N1$$

and when a ratio of the refractive indexes (N1) and (N2) is $N2/N1=R$, the following relationship is held further in the angle (θ) (degree) formed by the slope portion of the wedge-shaped portion and a normal line of the light beam outgoing plane:

$$-0.01 < R \cdot \cos \theta < 0.002, \text{ and}$$

$$3 \leq \theta \leq 20.$$

19. (Cancelled)

20. (Currently amended) A display device view-angle-control-sheet according to claim 18, wherein the following relationship is held further between the refractive indexes (N1) and (N2):

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$$0.8N1 \leq N2 \leq 0.98N1$$

21. (Currently amended) A display device view-angle control sheet according to claim 18, wherein a cross-sectional shape of the wedge-shaped portion is a substantial isosceles triangle.

22. (Currently amended) A display device view-angle control sheet according to claim 18, wherein one of angles formed by two slopes of the wedge-shaped portion and the normal line of the light beam outgoing plane is larger than the other.

23. (Currently amended) A display device view-angle control sheet according to claim 18, wherein the slope portion of the view angle control sheet has a curved cross-sectional shape or a polygonal-line cross-sectional shape such that the liquid crystal display panel screen side differs from the observer side in an angle formed by the slope portion and an observer side surface.

24. (Currently amended) A display device view-angle control sheet according to claim 18, wherein light beam absorption particles are added to the wedge-shaped portion.

25. (Currently amended) A display device view-angle control sheet according to claim 24, wherein an average particle size of the light beam absorption particles is at least 1 μm and the average particle size is not more than two-thirds of a width of the bottom surface.

26. (Currently amended) A display device view-angle control sheet according to claim 24, wherein an addition amount of the light beam absorption particle ranges from 10 to 50% by volume.

27. (Currently amended) A display device view-angle control sheet according to claim 18, wherein a function of any one of anti-reflection (AR), anti-static (AS), anti-glaring (AG), and a touch sensor or a plurality of functions thereof are imparted to at least one surface side.

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28. (Cancelled).

29. (Currently amended) A display device according to claim 18, wherein [[a]]
~~the view angle control sheet according to claim 18~~ is arranged in a crosswise stripe.

30. (Currently amended) A display device according to claim 18, wherein one
view angle control sheet ~~according to claim 18~~ is laminated on the observer side of a
~~screen image source the liquid crystal display panel~~ or two view angle control sheets
~~according to claim 18~~ are laminated the observer side of the liquid crystal display
~~panel screen image source~~ while being substantially orthogonal to each other.

31. (Previously Presented) A display device according to claim 30, wherein
the width of the bottom surface is not more than 1/1.5 of a size of one pixel.